# Flatman Monitor – User Manual

**Customer: Standard**
User Manual (Version 1.2)

**s&t embedded GmbH** – Gutenbergstr. 2 – 85737 Ismaning - Germany
Phone: +49 89 370058 – 0 Fax: +49 89 37000 689
Mail to: info@snt-embedded.de
www.snt-embedded.de

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# 2 Introduction

## 2.1 Symbols used in this Manual

This symbol point out to especially information.

## 2.2 Important Instructions

This chapter contains instructions which must be observed when using your Flatman Monitor.
The manufacturer's instructions provide useful information on your device.

## 2.3 Note on the Warranty

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to the CMOS battery, for example.

# 3 General Safety Instructions

The ext. supply shall meet the criteria for SELV / LPS (Safety Extra-low Voltage / Limited Power Source, LPS) acc. UL 60950-1.

It must be assumed that safe operation is no longer possible, if the device has visible damage or if the device no longer functions. In these cases the device must be shut down and secured against unintentional operation.

Please read this section carefully and observe the instructions for your own safety and correct use of the device. The chapter also contains information on approval and interference suppression of your device. Observe the warnings and instructions on the device and in the manual.
In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- The device must be used in accordance with the instructions for use.
- The electrical installations in the room must correspond to the requirements of the local (country-specific) regulations.
- Take care that there are no cables, particularly power cables, in areas where persons can trip over them.
- Only use the power cord supplied. Don't use injured or damaged power cords.
- For DC power connection:
  The DC power source should be able to be switched off and on via an isolating switch.
  The unit is only completely disconnected from the DC main power source, when the DC power cord is disconnected either from the power source or the unit. Therefore, the DC power cord and its connectors must always remain easily accessible.
- For AC power connection via external AC/DC adapter:
  The main power cable of the external AC/DC adapter serves as disconnecting device. For this reason the outlet of the AC power source must be located near to the device and be easily accessible.
- Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.
- Only devices and components which fulfill the requirements of an SELV circuit (safety extra low voltage) in accordance with EN60950 may be connected to the interfaces of the system.
- All plugs on the connection cables must be screwed or locked to the housing.
- The device generates heat during operation. Make sure it is adequately ventilated. Do not cover the air intake and exhaust openings of the device.
- Repairs may only be carried out by qualified specialist personnel authorized by S&T.
- Maintenance or repair on the open device may only be carried out by qualified personnel authorized by SNT which is aware of with the associated dangers.
- When accessing internal components the device must be switched off and disconnected from the power source.

# 4 Electromagnetic Compatibility

## 4.1 Electromagnetic Compatibility EU

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. If the user modifies and/or adds to the equipment (e.g. installation of add-on cards) the prerequisites for the CE conformity declaration (safety requirements) may no longer apply.
Generic standards - Emission standard for residential, commercial and light-industrial environments (Emission): EN 61000-6-3
Emission of Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement: EN 55022/B
ITE - Immunity characteristics - Limits and methods of measurement: EN 55024

## 4.2 Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Therefore proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following precautions:

- Keep electrostatic sensitive parts in their containers until they arrive at the ESD-safe workplace.
- Always be properly grounded when touching a sensitive board, component, or assembly.

### 4.2.1 Grounding Methods

The following measures help to avoid electrostatic damages to the device:

- Cover workstations with approved antistatic material. Always wear a wrist strap connected to workplace as well as properly grounded tools and equipment.
- Use antistatic mats, heel straps, or air ionizers for more protection.
- Always handle electrostatically sensitive components by their edge or by their casing.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or connecting test equipment.
- Keep work area free of non-conductive materials such as ordinary plastic assembly aids and styrofoam.
- Use field service tools such as cutters, screwdrivers, and vacuum cleaners which are conductive.
- Always place drives and boards PCB-assembly-side down on the foam.

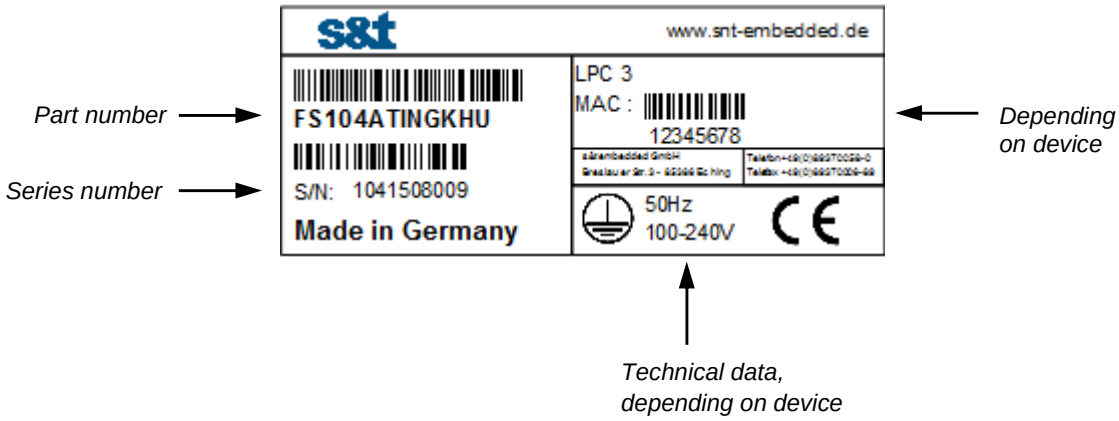
# 5 Scope of Delivery (options)

This chapter describes the components which can be optionally ordered and delivered:

| | Qty | Part# | Part Description |
|---|---|---|---|
| | 1 | s. order information | Flatman Monitor |
| | 1 | EE04-100001-01 | Phoenix Power Subcon w/ housing |
| | 1 | 840-0598 | Adapter VGA / DVI |
| | 1 | 840-0039 | VGA/SVGA cable 1,8m/2,0m |
| | 1 | 840-0273 | USB-cable 1,8m, Type A – Type B |
| | 1 | 840-0134 | DVI-cable 2m |
| | 1 | 840-0758 | Display-Port-cable 1,8m |
| | 1 | 840-0059 | EU-Powercord 1,8m |
| | 1 | ER40-100001-01 | Set Power supply 24VDC /w Phoenix Connector |

### 5.1.1 Type Label and Product Identification

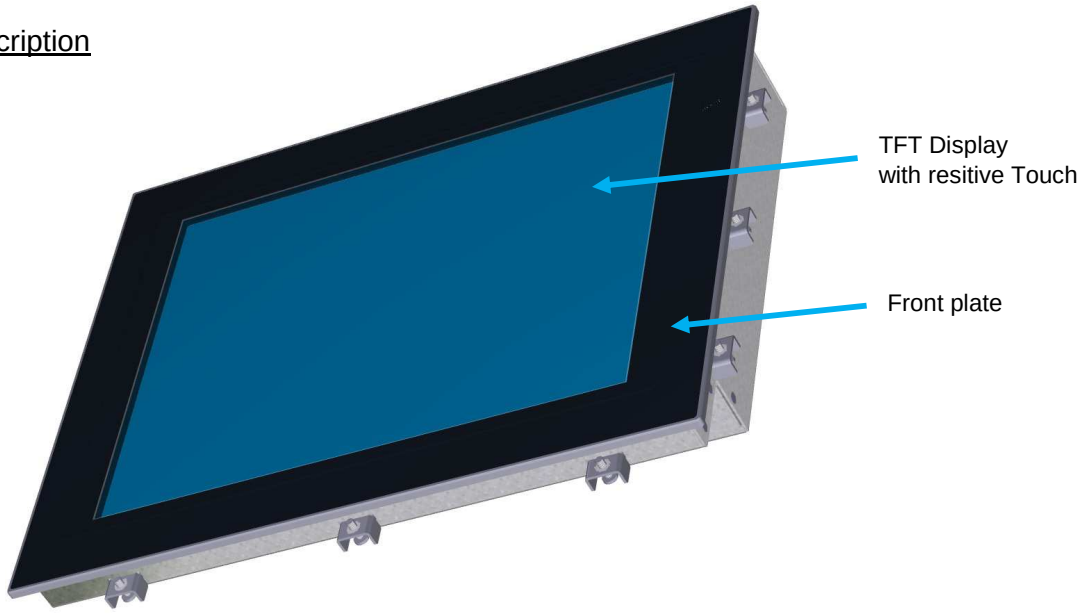
Product and Package Label, size 80 x 35mm, polyester matt silver



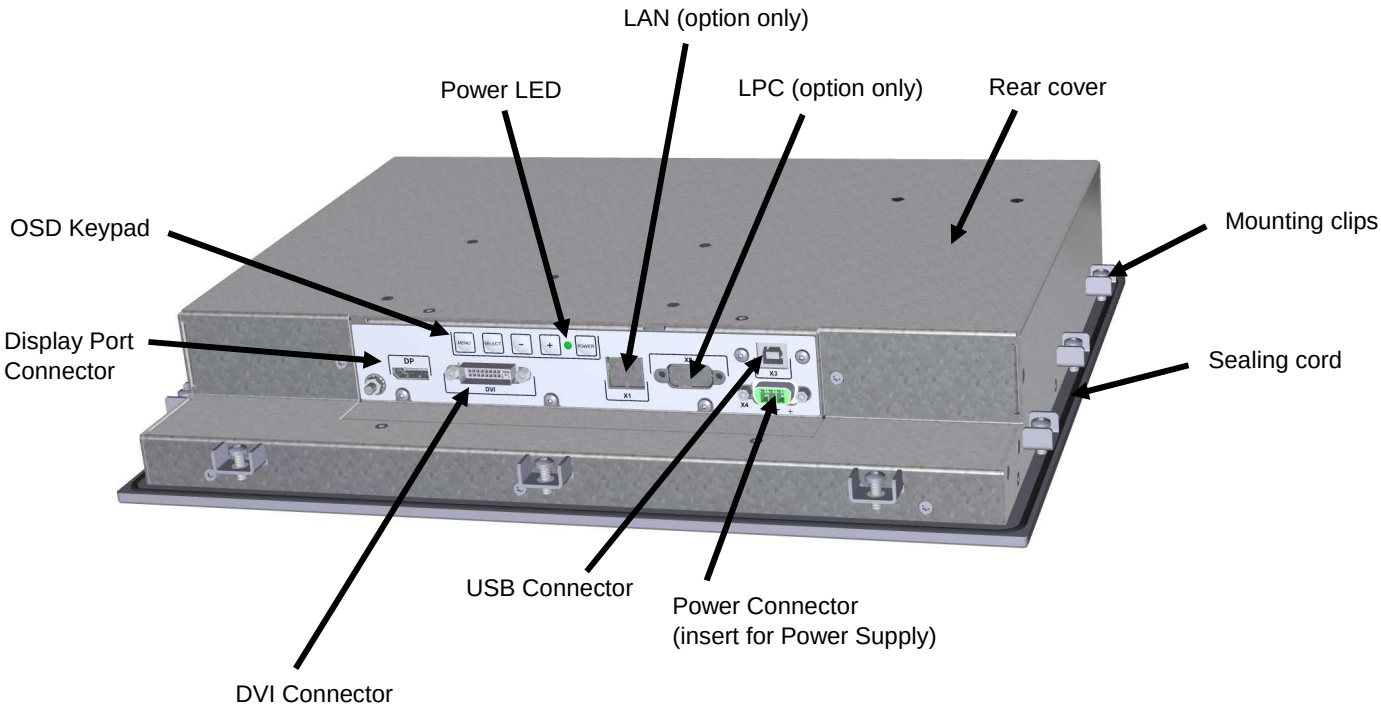
# 6 Product Description

## 6.1 Product view

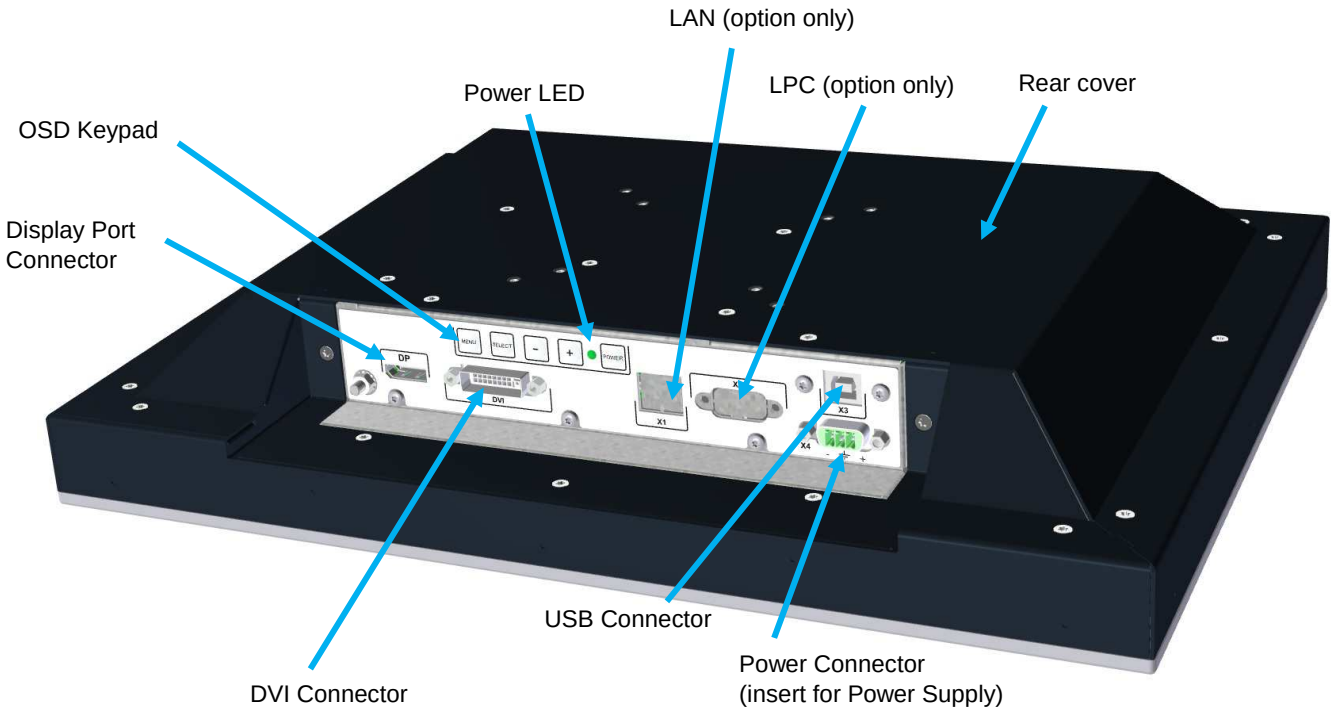
Front View Description




Bottom View Description – built-in-variant



Bottom View Description – full metal-variant



# 7 Technical Data / Environmental Specification

| Display size | 10.4“ | 12.1“ | 12.1“ XGA | 15.0“ | 15.6“ |
|---|---|---|---|---|---|
| Display manufacturer | Innolux | Innolux | Innolux | Innolux | Innolux (*) |
| Display type | G104AGE-L02 | G121AGE-L03 | G121X1-L03 | G150XGE-L04 | G156BGE-L01 (*) |
| Resolution | 800 x 600 | 800 x 600 | 1024x768, XGA | 1024 x 768 | 1366 x 768, HD |
| Format | 4:3 | 4:3 | 4:3 | 4:3 | 16.9 |
| Contrast Ratio | 700:1 | 1500:1 | 700:1 | 700:1 | 500:1 |
| Brightness | 400cd | 450cd | 600cd | 400cd | 300cd |
| Angle View | H160° / V140° | H178° / V178° | H160°/ V140° | H160° / V140° | H160° / V160° |
| Colors | 16.7 million | 16.7 million | 16.7 million | 16.7 million | 16.7 million |
| LED Lifetime (> 50%, 25°C) | > 50.000h | > 50.000h | > 50.000h | > 50.000h | > 50.000h |
| Dimensions (WxHxD - mm) | 297 x 244 x 65 | 338 x 277 x 65 | 338 x 277 x 65 | 396 x 312 x 69 | 432 x 281 x 74 |
| Weight | ~ 3,9kg | ~ 4,7kg | ~ 4,7kg | ~ 6,4kg | ~ 6,7kg |
| Touch Options | w/o / P-Cap / resistive | | | | |

| Display size | 15.6“ Full HD | 17.0“ | 18.5“ | 19.0“ | 21.5“ |
|---|---|---|---|---|---|
| Display manufacturer | Sharp | AUO | Innolux | AUO | AUO |
| Display type | LQ156M1LG21 | G170EG01V1 | G185BGE-L01 | G190ETN01.2 | G215HVN01.0 |
| Resolution | 1920 x 1080, Full HD | 1280x1024 | 1366x768, HD | 1280x1024 | 1920 x 1080, Full HD |
| Format | 16:9 | 4:3 | 16:9 | 4:3 | 16:9 |
| Contrast Ratio | 800:1 | 800:1 | 1000:1 | 1000:1 | 3000:1 |
| Brightness | 600cd | 350cd | 300cd | 350cd | 300cd |
| Angle View | H160° / V160° | H160° / V140° | H178° / V170° | H160° / V150° | H178° / V178° |
| Colors | 16.7 million | 16.7 million | 16.7 million | 16.7 million | 16.7 million |
| LED Lifetime (> 50%, 25°C) | > 50.000h | > 50.000h | > 50.000h | > 50.000h | > 50.000h |
| Dimensions (WxHxD - mm) | 432 x 281 x 74 | 427 x 360 74 | 500 x 321 x 74 | 473 x 396 x 68 | 575 x 367 x 74 |
| Weight | ~ 6,7kg | ~ 7,8kg | t.b.d. | ~ 9,4kg | ~ 10,7kg |
| Touch Options | w/o / P-Cap / resistive | | | | |

| | |
|---|---|
| Fastening | VESA 75/75//100/100 (full metal only), Mounting clips |
| Color | RAL 7021 (black anthracite) |
| Video IN | 1x DVI, 1x Display-port |
| I/O Options | USB2.0 client (Type B); LPC (Option), LAN (option) |
| Power Supply | 16-30VDC Input via Phoenix Connector PSC 1,5/3-F |
| Cooling | Fanless passiv cooling |
| Operating Temperature | 0°C - 50°C ambient |
| Storage Temperature | -10°C - 60°C ambient |
| Humidity | 10%-90% @ 39°C, non condensing |
| Operating Altitude | Up to 3000 m (9900 ft) |
| Storage Altitude | Up to 5000 m (16500 ft) |
| Certification | CE, cULus |
| Protection class | Front: IP65, Housing IP20 |
| EMC | EN55022 class B |

## 7.1 CE Directives and Standards CE Directives

| | |
|---|---|
| Low Voltage Directive (Electrical Safety) | 2006/95/EC |
| EMC Directive | 2004/108/EC |
| RoHS II Directives | 2011/65/EU |

## 7.2 Order Information

e.g.:
EN00-Z31300-01 Flatman Monitor 15“ Touch res. Full metal cover
EN00-Z31400-01 Flatman Monitor 15“ Touch res. Built-in-variant

**EN00-Zxxxyy-01**
① ②③④ ⑤ ⑥

① - Internal Code (Standard Flatman)

② - Display Size/CPU
1 = 10.4“
2 = 12.1“
3 = 15.0“
4 = 15.6“
5 = 17.0“
6 = 18.5“
7 = 19.0“
8 = 21.5“

③ - Touch Technology:
0 = without touch, only with Protection glass
1 = Touch resistive
2 = Touch P-CAP
3 = with Protection glass and stainless steel front
4 = Touch resistive and stainless steel front
5 = Touch P-CAP and stainless steel front
6 = Touch P-CAP – V2
7 = without touch, only with Protection glass – V2

④ - Mounting Variant:
3 = Monitor Full metal (w/o CPU)
4 = Monitor built-in-mounting (w/o CPU)

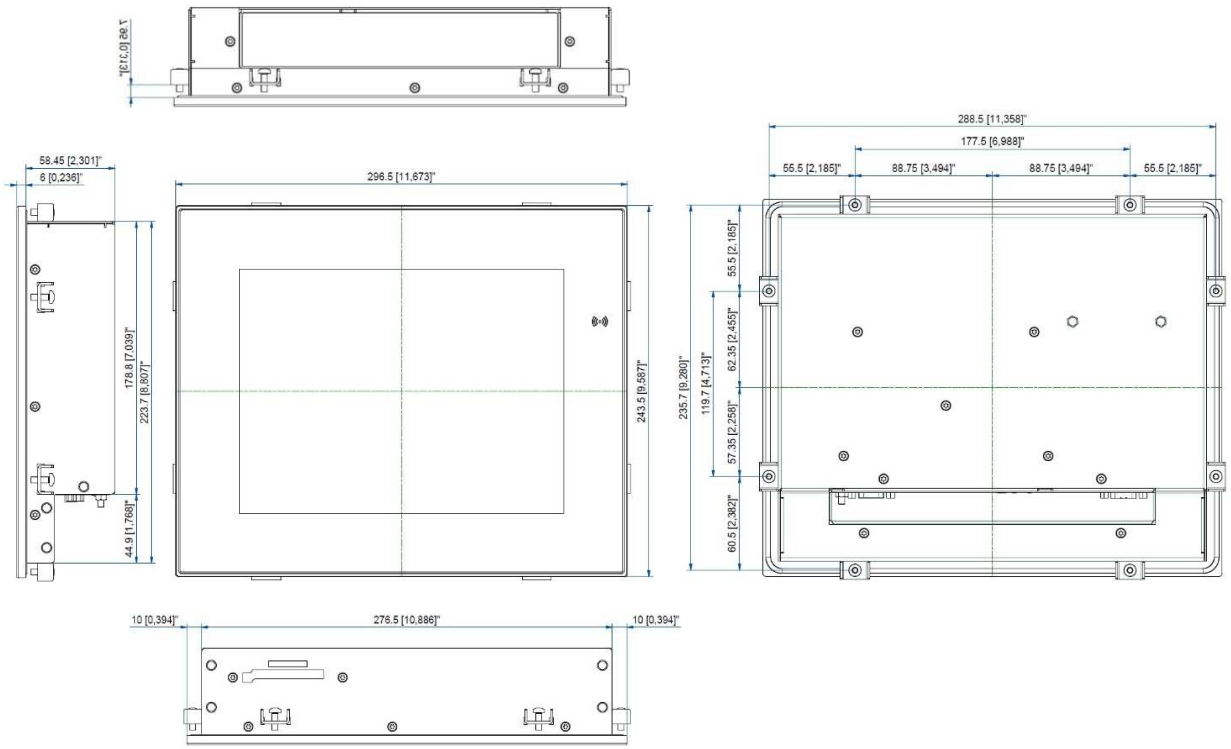
⑤ - Options: counted on demand for several options

⑥ - Internal Code (Revision)

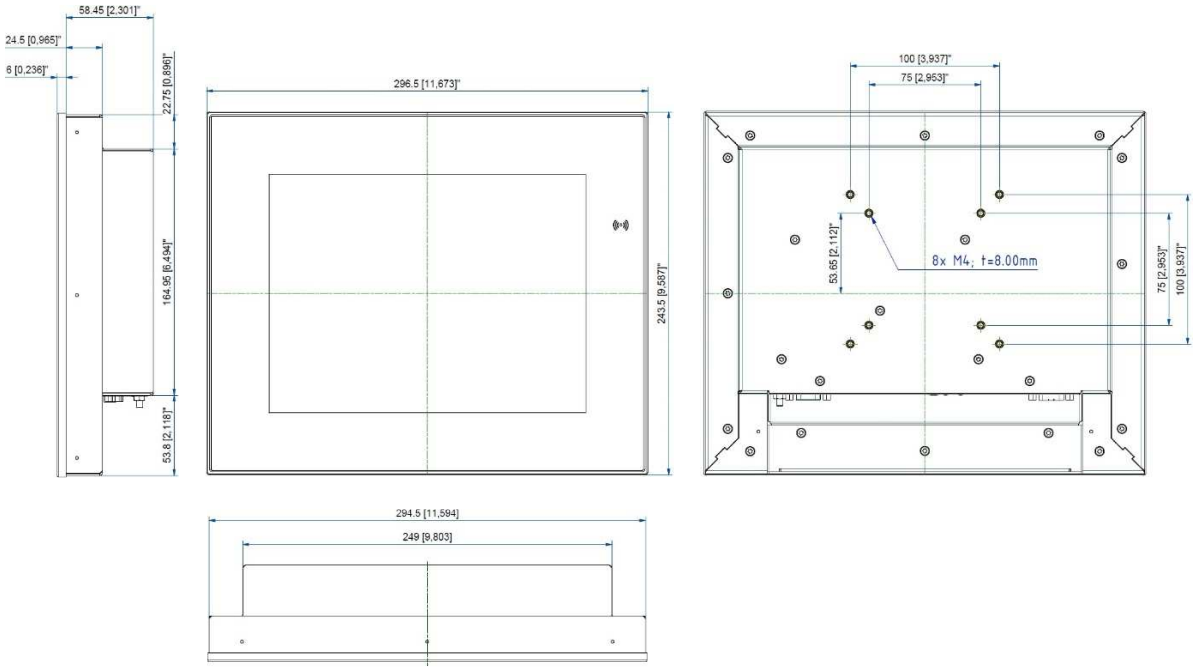
# 8 Mechanical Specifications

## 8.1 Dimension Drawing

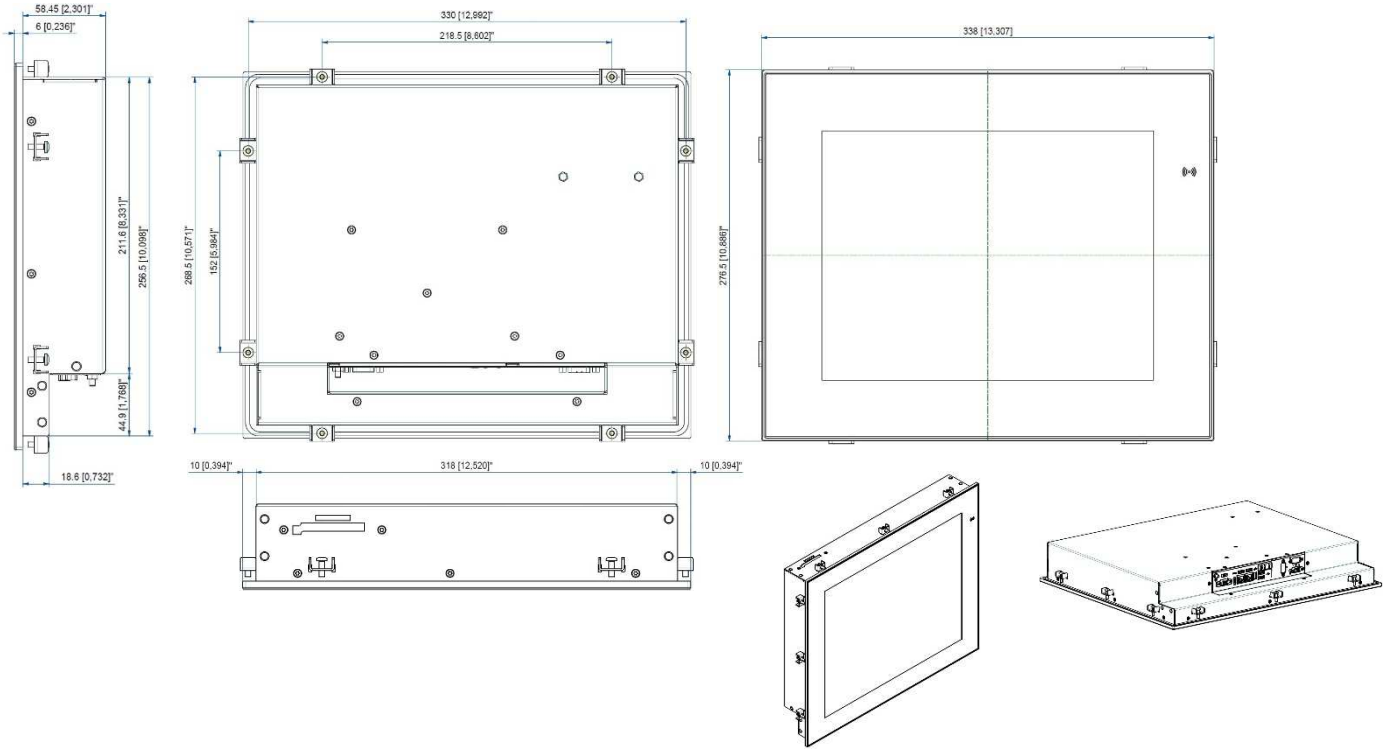
### 8.1.1 10.4“ built-in-variant



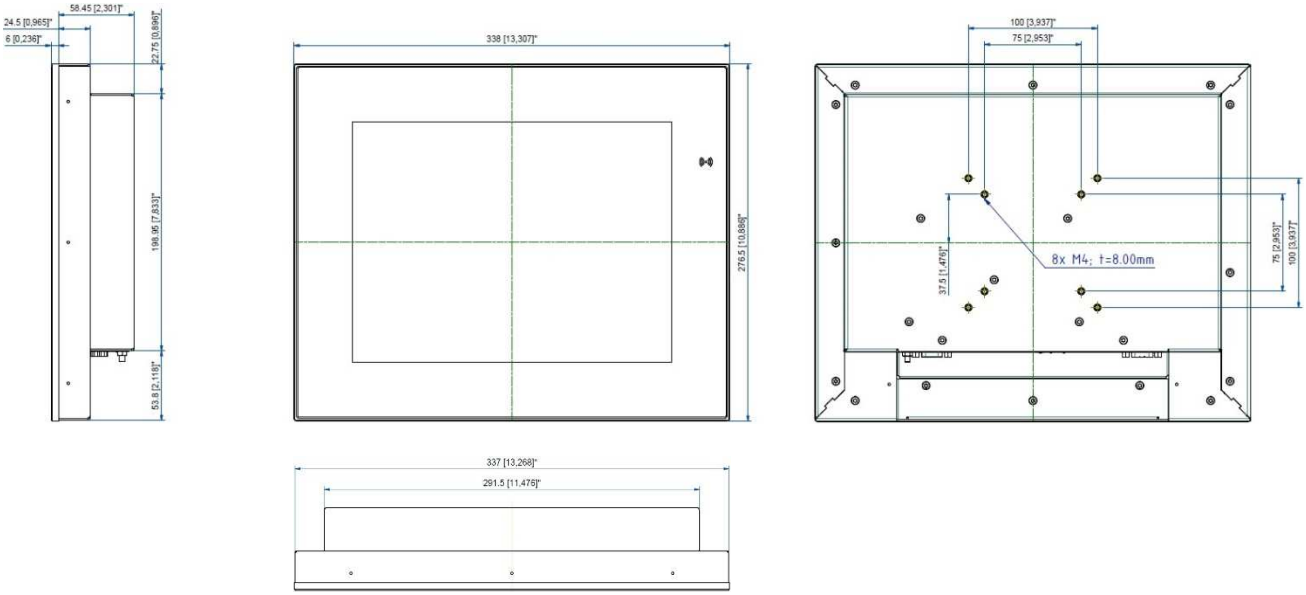

### 8.1.2 10.4“ full metal



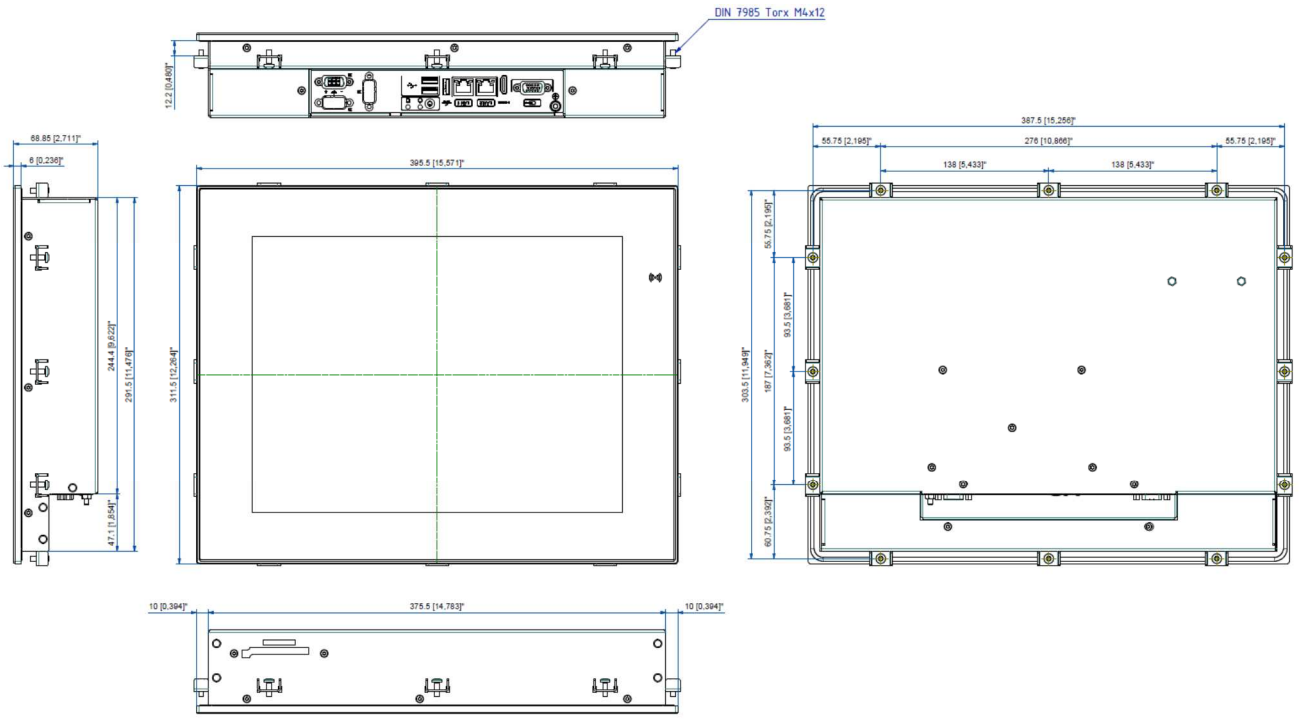
### 8.1.3 12.1“ built-in-variant



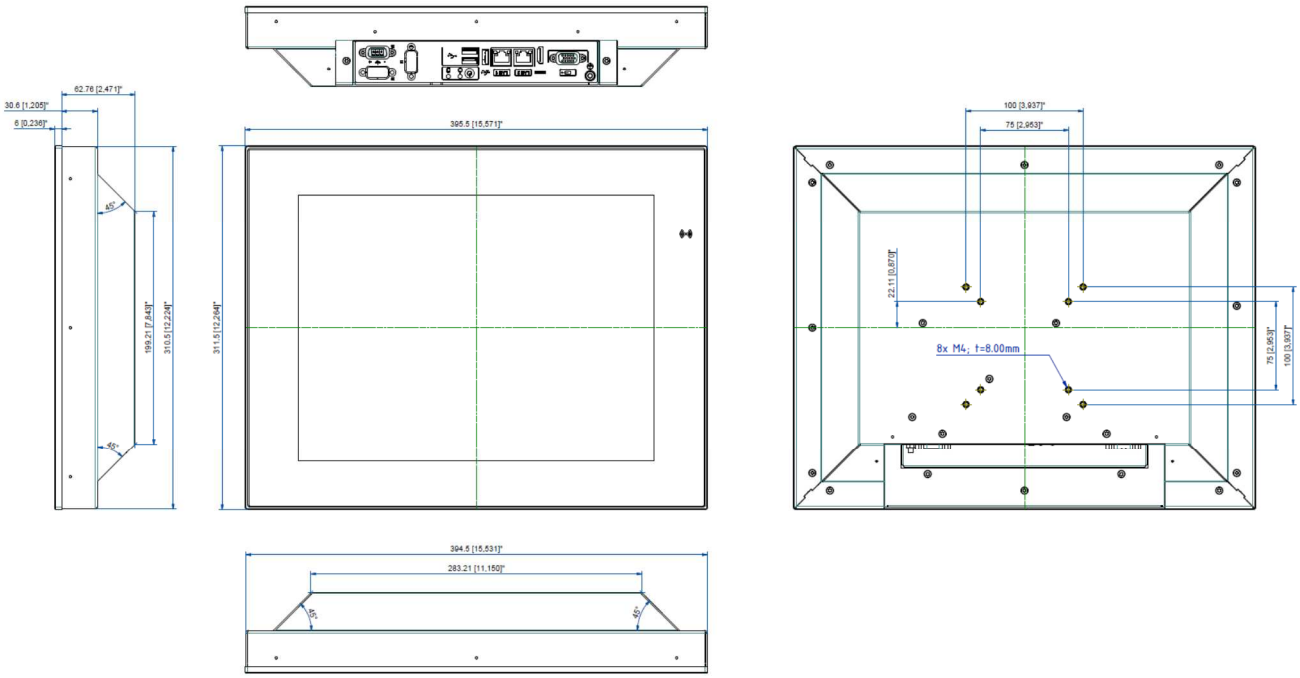

### 8.1.4 12.1“ full metal



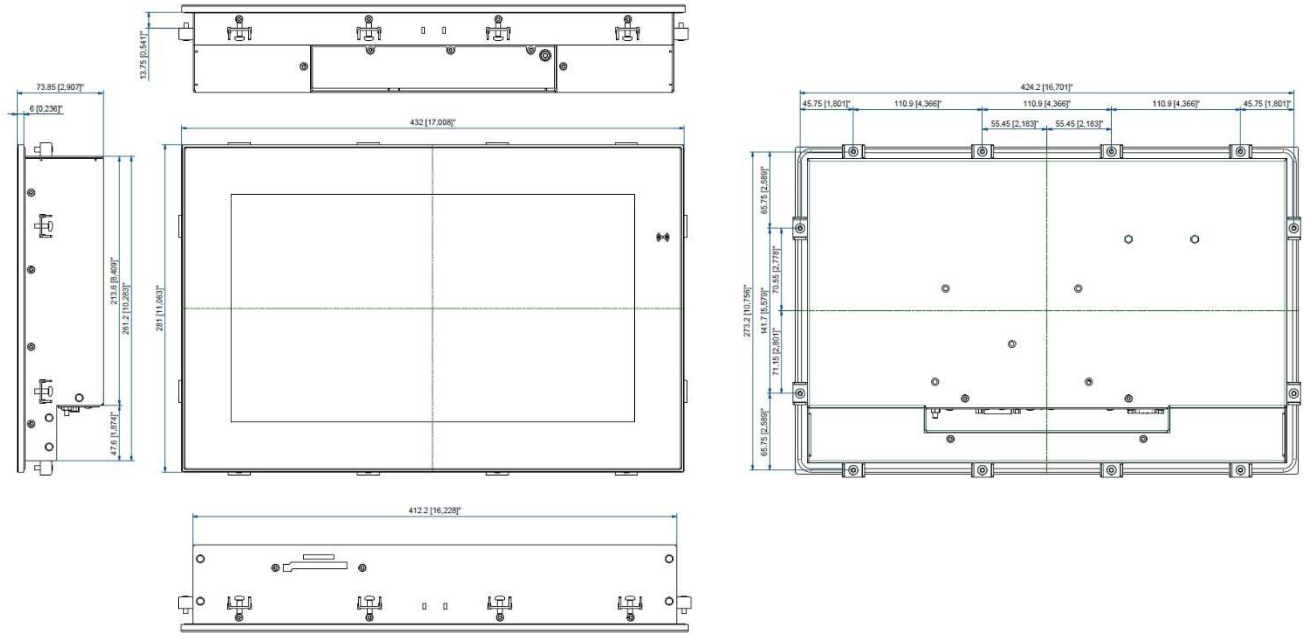
### 8.1.5 15.0“ built-in-variant



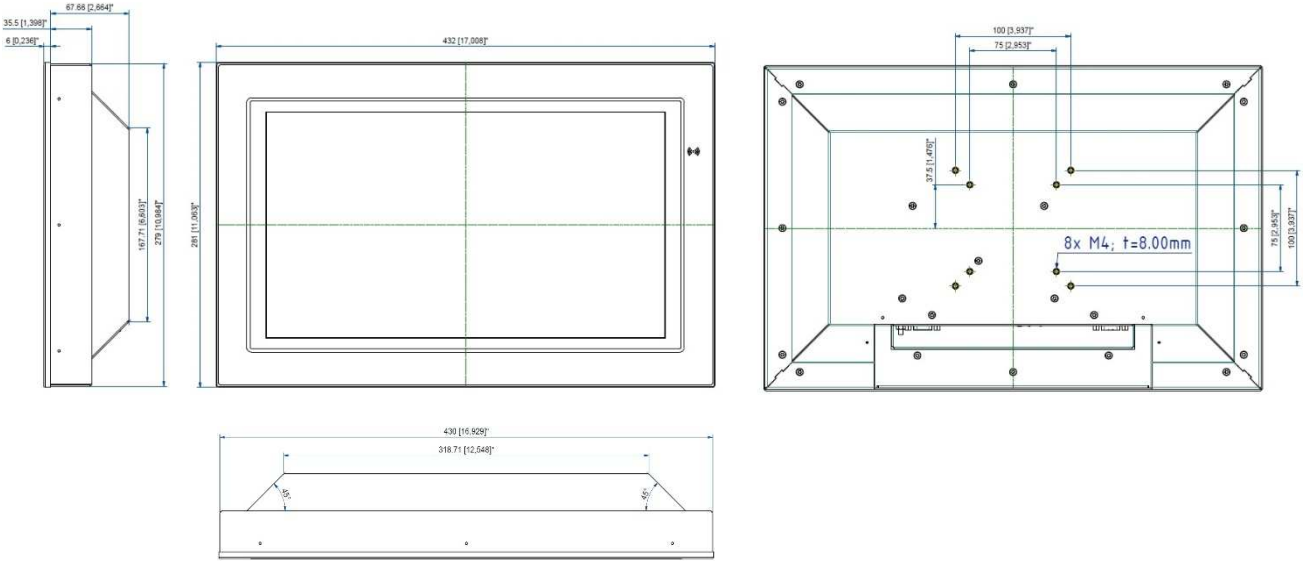

### 8.1.6 15.0“ full metal



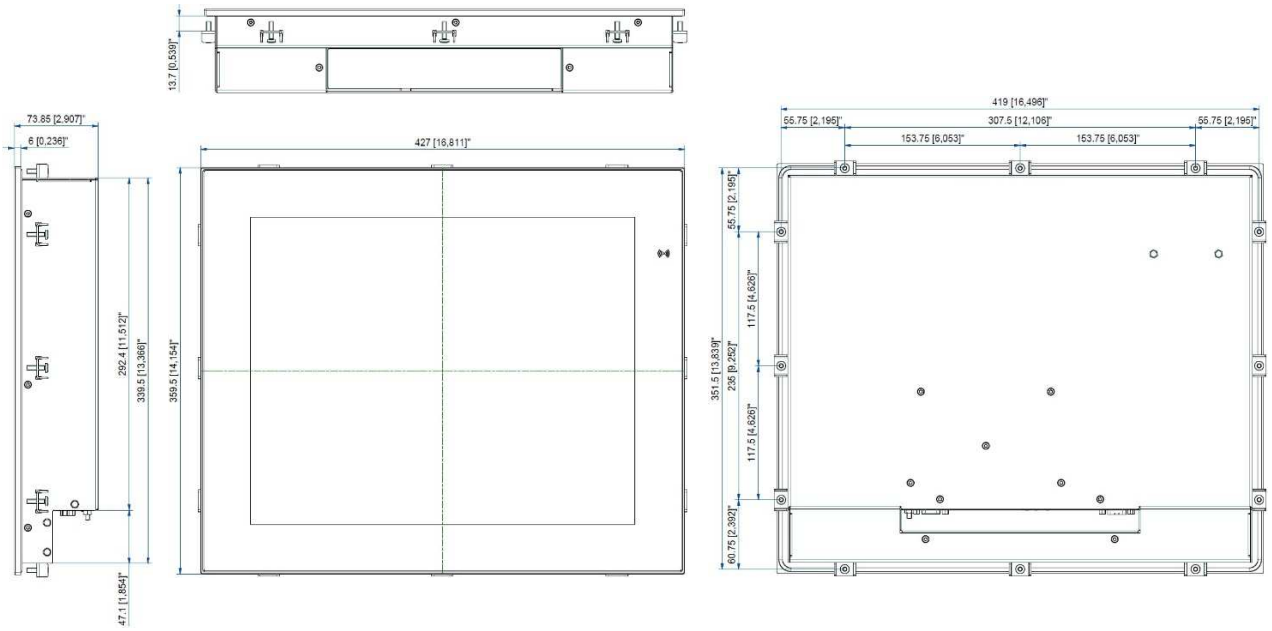
### 8.1.7 15.6“ built-in-variant



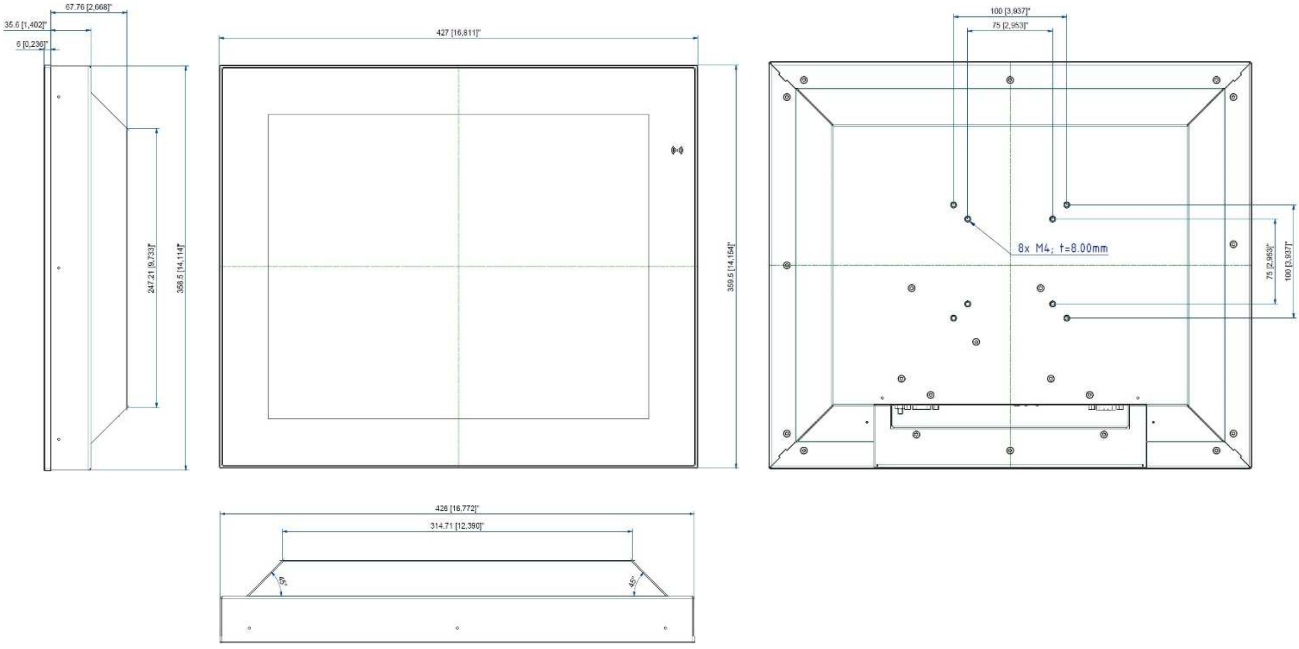
### 8.1.8 15.6“ full metal



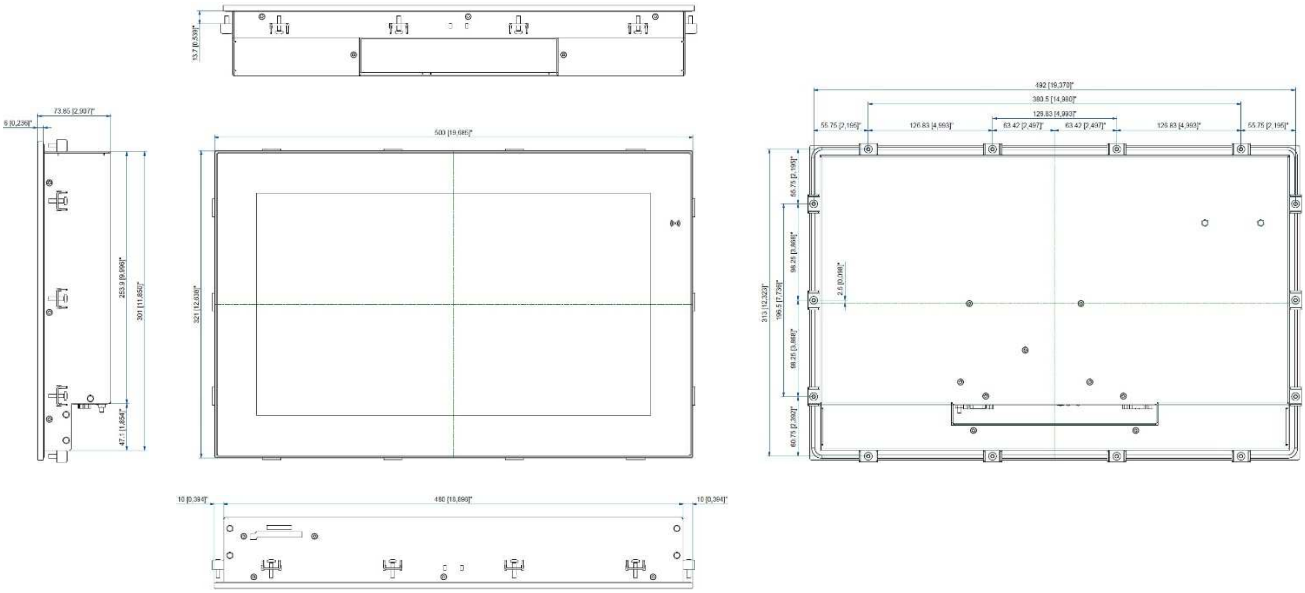
### 8.1.9 17.0“ built-in-variant



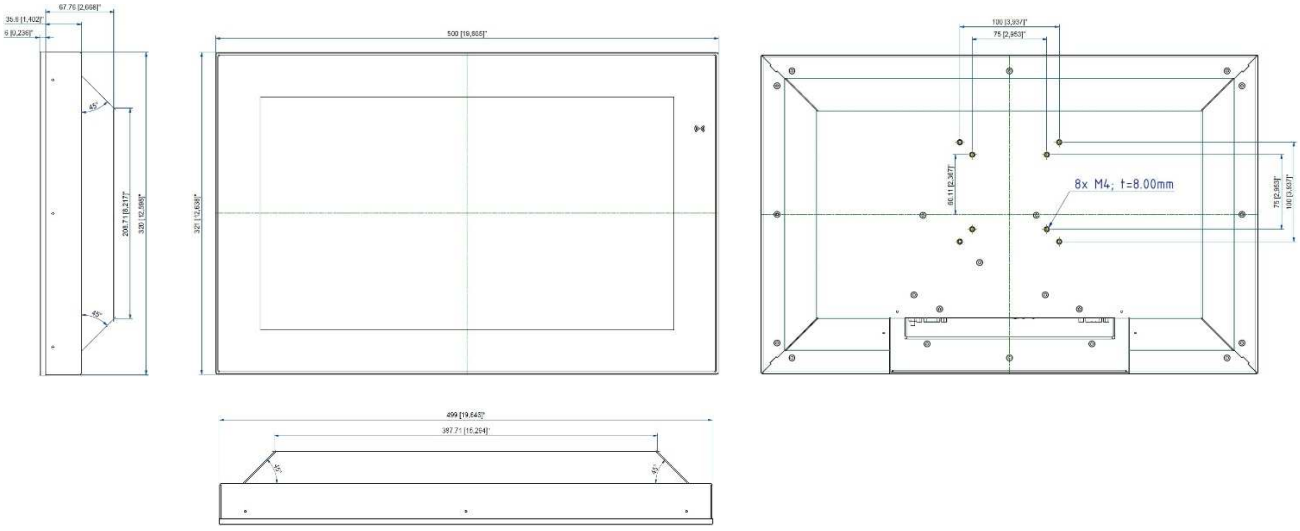

### 8.1.10 17.0“ full metal



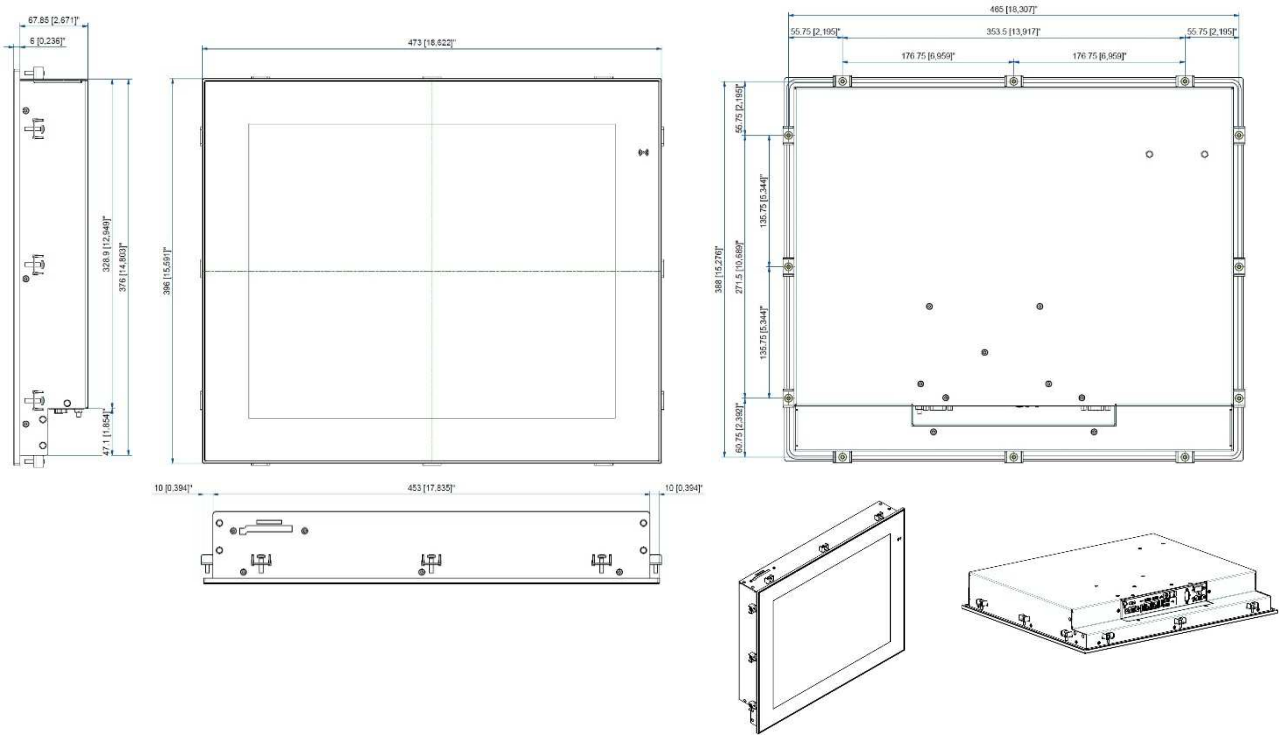
### 8.1.11 18.5“ built-in-variant



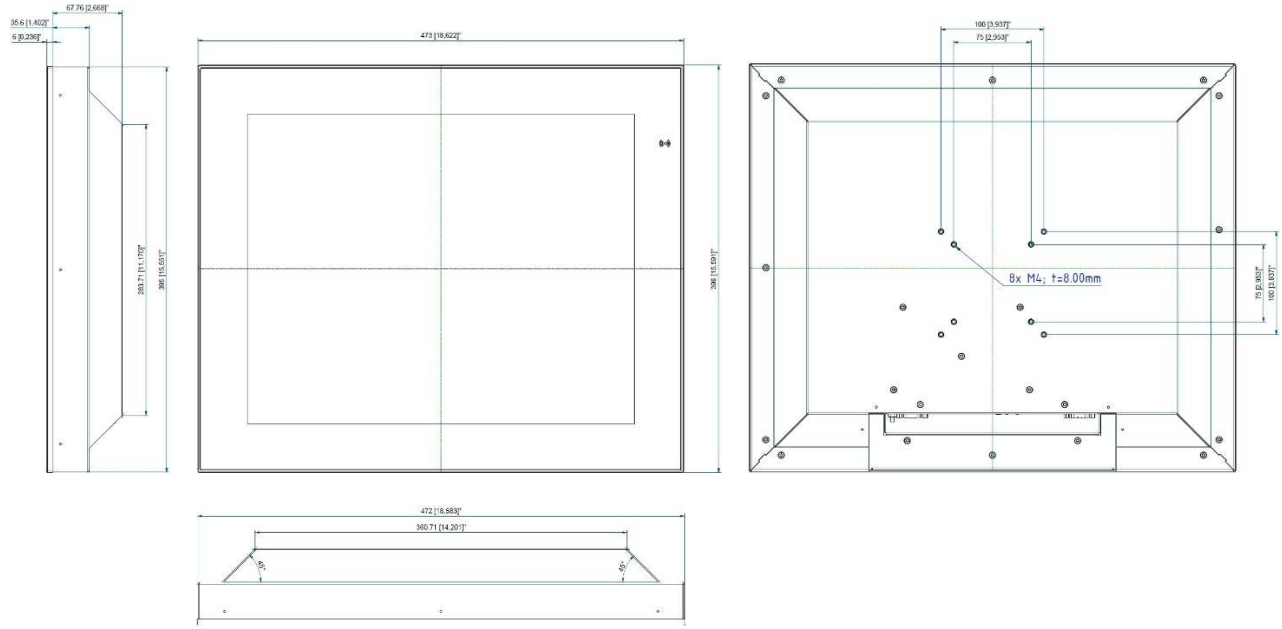
### 8.1.12 18.5“ full metal



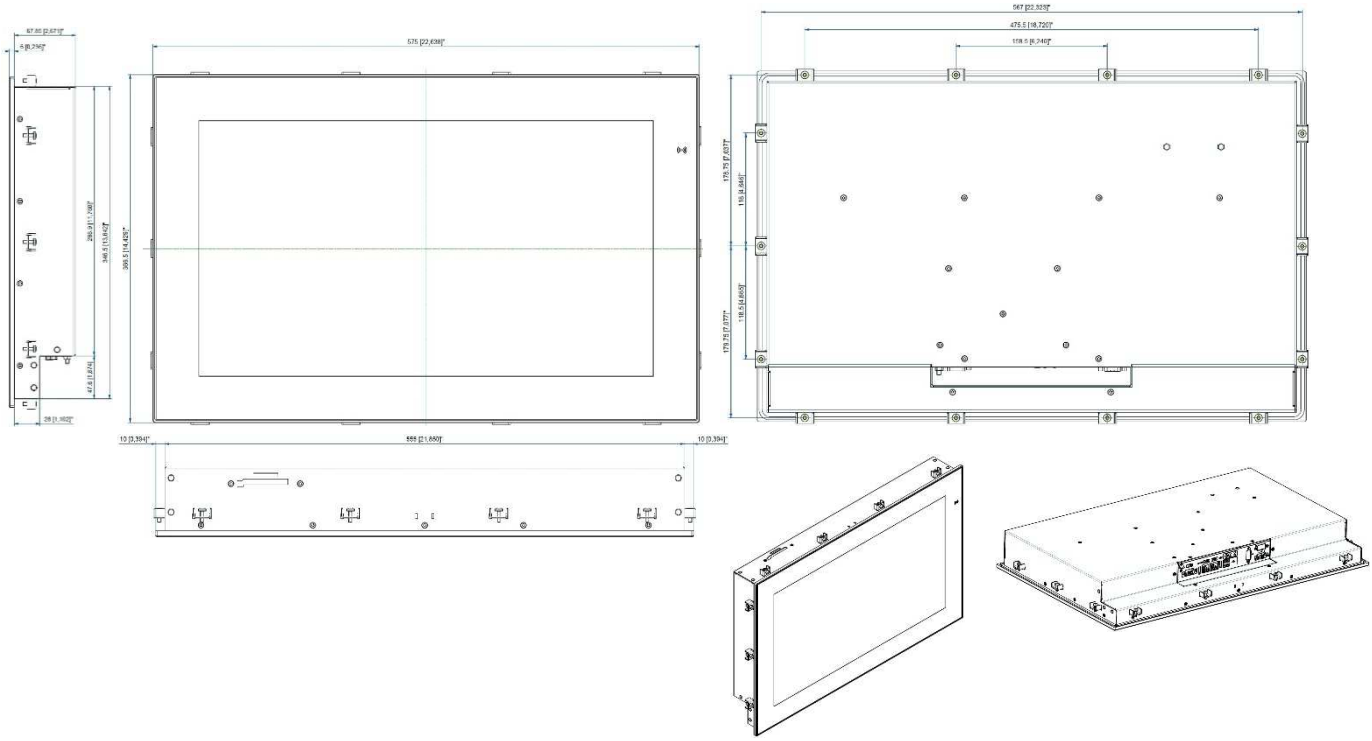
### 8.1.13 19.0“ built-in-variant



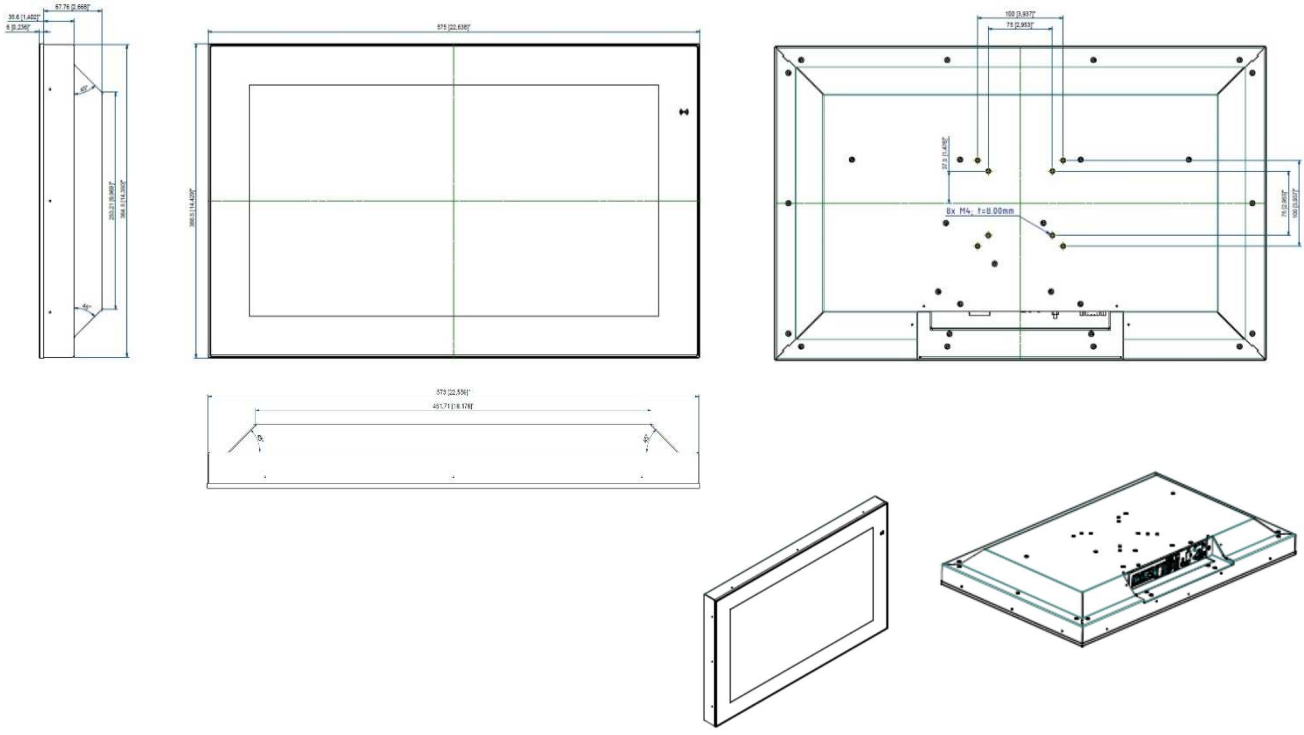
### 8.1.14 19.0“ full metal



### 8.1.15 21.5“ built-in-variant

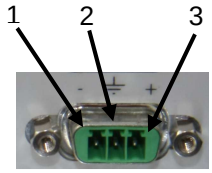


### 8.1.16 21.5“ full metal



# 9 Connectors

## 9.1 PWR: Input Power Connector




| Pin | Signal |
|---|---|
| 1 | GND |
| 2 | Shield |
| 3 | VCC (24VDC only!) |

| Mating connector | |
|---|---|
| Phoenix Contact<br>PSC 1,5/ 3-F<br>Order# 1841909 | |

## 9.2 OSD Keypad

With the self explaining OSD ( On Screen Display ) you can modify the settings and control the special features of the CRTtoLCD-Controller. The OSD uses a number of menus for making changes and turning the special features on or off. The configuration can be done via the OSD-keypad

### 9.2.1 Power Button

Press this button to turn on or off the device.

### 9.2.2 LED Power indicator

| LED | function |
|---|---|
| off | No Power |
| green | active |

| | |
|---|---|
| yellow | Standby |

### 9.2.3 Up Button Down Button

To select an tab, simply use the button "UP" or "DOWN" to move the cursor to the tab you want

### 9.2.4 Select Button

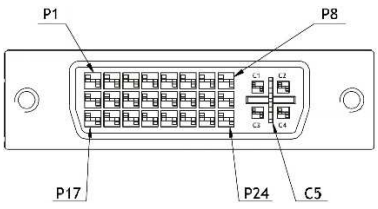
If you have chosen the tab you want press the button "select".

### 9.2.5 Menu Button

Press the button "Menu" to open the OSD menu.

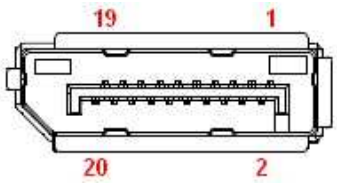
## 9.3 DVI connector

*(front view):*




| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | Rx2- | 9 | Rx1- | 17 | Rx0- |
| 2 | Rx2+ | 10 | Rx1+ | 18 | Rx0+ |
| 3 | GND | 11 | GND | 19 | GND |
| 4 | n.c. | 12 | n.c. | 20 | n.c. |
| 5 | n.c. | 13 | n.c. | 21 | n.c. |
| 6 | SCL | 14 | +5V | 22 | GND |
| 7 | SDA | 15 | GND | 23 | RxC+ |
| 8 | n.c. | 16 | HP | 24 | RxC- |
| C1 | RED | C3 | BLUE | C5 | GND |
| C2 | GREEN | C4 | HSYNC | C5- | GND |

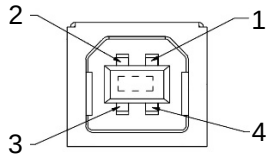
## 9.4 Display Port connector




| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | TX0+ | 11 | GND |
| 2 | GND | 12 | TX3- |
| 3 | TX0- | 13 | GND |
| 4 | TX1+ | 14 | GND |
| 5 | GND | 15 | AUX+ |
| 6 | TX1- | 16 | GND |
| 7 | TX2+ | 17 | AUX- |
| 8 | GND | 18 | HPD |
| 9 | TX2- | 19 | GND |
| 10 | TX3+ | 20 | PWR |

## 9.5 USB client connector (Type B)

*(front view):*




| Pin | Signal Name |
|---|---|
| 1 | +USB_VCC |
| 2 | USB_D- |
| 3 | USB_D+ |
| 4 | GND |

Internal connected to the touch controller.
Connect this port to your PC with USB cable part# 840-0273.

# 10 Technical Support

For technical support, please contact our Technical Support department:

e-mail: support@snt-embedded.de
Phone: +49 (0)89 37 00 58 - 0

Make sure you have the following information on hand when you call:

- the unit part id number (PN)
- the serial number (SN) of the unit;
  (the serial number can be found on the type label, placed on the rear side of the system)

Be ready to explain the nature of your problem to the service technician.

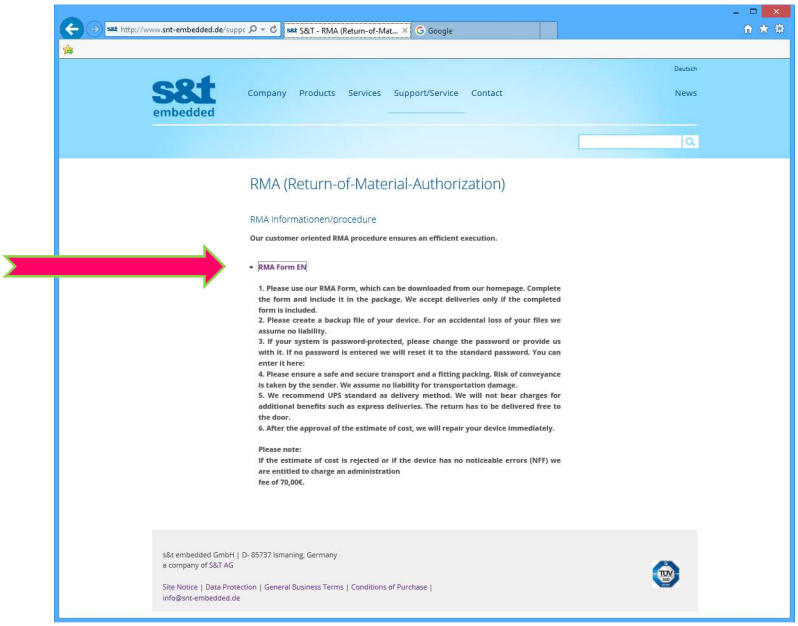
## 10.1 Warranty

There is a protection label on your Flatman Monitor.
If you open the device, the warranty is lost!

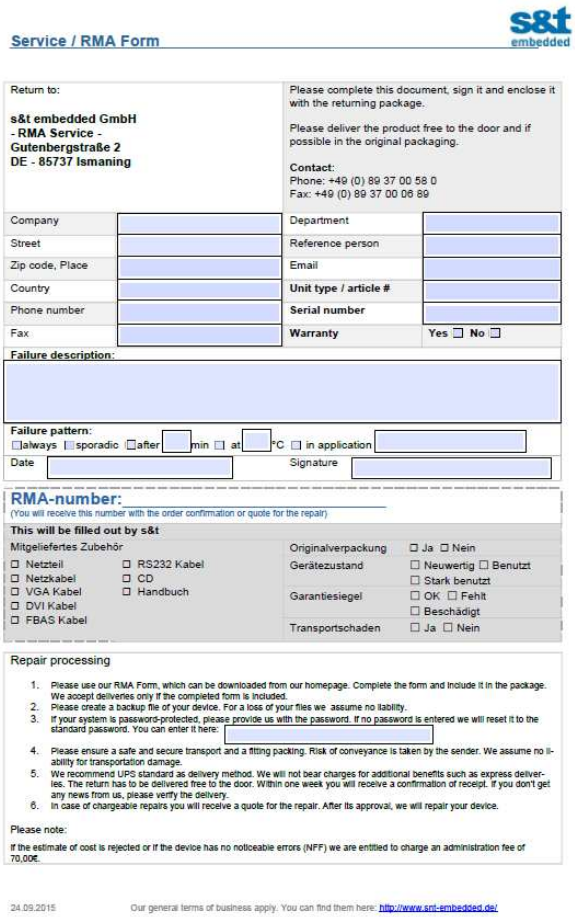
## 10.2 Returning Defective Merchandise

Please follow these steps before you return any merchandise to S&T Embedded GmbH:

1. See information on our website:
   http://www.snt-embedded.de/support/88436.de.php




2. Download the RMA corresponding form and fill it out, describe the fault that has occurred.



Service / RMA Form

s&t embedded

Return to:

**s&t embedded GmbH**
**- RMA Service -**
**Gutenbergstraße 2**
**DE - 85737 Ismaning**

Please complete this document, sign it and enclose it with the returning package.

Please deliver the product free to the door and if possible in the original packaging.

**Contact:**
Phone: +49 (0) 89 37 00 58 0
Fax: +49 (0) 89 37 00 08 89

| | | | |
|---|---|---|---|
| Company | | Department | |
| Street | | Reference person | |
| Zip code, Place | | Email | |
| Country | | **Unit type / article #** | |
| Phone number | | **Serial number** | |
| Fax | | **Warranty** | **Yes ☐ No ☐** |

**Failure description:**

**Failure pattern:**
☐always ☐sporadic ☐after ☐min ☐at ☐°C ☐in application

Date | Signature

**RMA-number:**
(You will receive this number with the order confirmation or quote for the repair)

**This will be filled out by s&t**

Mitgeliefertes Zubehör

☐ Netzteil ☐ RS232 Kabel
☐ Netzkabel ☐ CD
☐ VGA Kabel ☐ Handbuch
☐ DVI Kabel
☐ FBAS Kabel

| | |
|---|---|
| Originalverpackung | ☐ Ja ☐ Nein |
| Gerätezustand | ☐ Neuwertig ☐ Benutzt ☐ Stark benutzt |
| Garantiesiegel | ☐ OK ☐ Fehlt ☐ Beschädigt |
| Transportschaden | ☐ Ja ☐ Nein |

Repair processing

1. Please use our RMA Form, which can be downloaded from our homepage. Complete the form and include it in the package. We accept deliveries only if the completed form is included.
2. Please create a backup file of your device. For a loss of your files we assume no liability.
3. If your system is password-protected, please provide us with the password. If no password is entered we will reset it to the standard password. You can enter it here:
4. Please ensure a safe and secure transport and a fitting packing. Risk of conveyance is taken by the sender. We assume no liability for transportation damage.
5. We recommend UPS standard as delivery method. We will not bear charges for additional benefits such as express deliveries. The return has to be delivered free to the door. Within one week you will receive a confirmation of receipt. If you don't get any news from us, please verify the delivery.
6. In case of chargeable repairs you will receive a quote for the repair. After its approval, we will repair your device.

Please note:

If the estimate of cost is rejected or if the device has no noticeable errors (NFF) we are entitled to charge an administration fee of 70,00€.

24.09.2015 Our general terms of business apply. You can find them here: http://www.snt-embedded.de/

3. When returning a device:
   - Pack it securely in its original box.
   - Enclose RMA form with the consignment.

4. Sent the device to the following adress:

   s&t embedded GmbH
   RMA support
   Gutenbergstr. 2
   D- 85737 Ismaning

   (If you send more than one device in a package  fill out a form for each device!)

5. After receiving your device at s&t you will get a confirmation of the order via email to the adress which is above-named on the form. This order number is your RMA number.